A NEW *QUADRACEPS* (MALLOPHAGA, ISCHNOCERA) PARASITIZING SHEATHBILLS (*CHIONIS*).

By G. Timmermann, Hamburg.
(*Communicated by Dr. I. M. Mackerras.*)

(Plate ix; one Text-figure.)

[Read 31st July, 1963.]

I recently received for examination a number of specimens of *Quadraceps* (Mallophaga) from *Chionis*, collected by Mr. P. S. Young during the 1950 Australian National Antarctic Research Expedition to Heard Island. About ten years ago (Timmermann, 1952, 1953) I gave a first report on Mallophaga of the genera *Saemundssonia* and *Quadraceps* found on *Chionis*. On this occasion I showed that no direct conclusion could be drawn regarding the systematic position of the host, because the Mallophaga were in both cases obviously secondarily acquired species, namely *Saemundssonia lari* and *Quadraceps ornatus*; these are both common and widely distributed on gulls and also in other cases known for straggling. "In spite of the fact that each species has already developed a weakly marked form on *Chionis* (*Saemundssonia lari australis* Tim. and a population quite close to *Quadraceps ornatus antarcticus* Tim., respectively) I do not doubt seriously that here we find ourselves confronted with the result of a relatively recent secondary infestation by gull parasites. The original mallophagan population of *Chionis* must have been different" (Timmermann, 1953). I have adhered to this opinion since (Timmermann, 1955, 1957), but at the same time conceded the possibility that the occurrence of *Saemundssonia lari* and *Quadraceps ornatus* on *Chionis* might suggest a relationship between gulls and sheathbills in so far as the environmental conditions provided by the body of the hosts might be similar, due to the hosts' common origin; this could have facilitated the establishment of the parasites on *Chionis*. Cases of such "re-settlements", in which nearly related but phylogenetically much younger and more successful parasites compete with their archaic relatives and replace them on their host groups, are obviously widespread, and are known not only from Mallophaga but also from Trematoda (Szidat, 1956).

In 1954, Séguy described *Actornithophilus pauliani* from *Chionis minor*, which is, unlike the two species named above, not a gull parasite, but a true parasite of waders. According to Clay (1962) this species is near *A. hoplopteri* (Mjöberg) from the Spur-winged Plover and other related species. This might suggest that *A. pauliani* is perhaps a secondary acquisition from a member of the South American Charadriidae. Unfortunately, the Mallophaga of this host group have not yet been sufficiently studied to supply any direct evidence. No species of *Austromenopon* have so far been found on *Chionis*.

This being the state of affairs, it was of considerable interest to receive these specimens of a new species of *Quadracaps* from *Chionis minor nasicornis* for examination, as they might possibly represent the true *Quadraceps* of the sheathbills. At all events, the assumption that this new *Quadraceps* is no casual straggler, but a species permanently established on sheathbills, is supported by the fact that a single specimen of the species in question, now in the Waterston Collection of the British Museum, had already been collected 75 years ago on *Chionis minor* by the Challenger Expedition.

Quadraceps vaginalis, n. sp.

Type Host: *Chionis minor nasicornis* Reichenow.

The body is a bright yellowish-brown colour, and has a darker marginal pattern (Pl. ix). The head is relatively large, pronouncedly heart-shaped; the foremost, hyaline part of the clypeus projects somewhat abruptly between the two premarginal carinae; the occipital margin is weakly concave. The outline of the male abdomen is rounded.

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that of the female more elongated. The last segment of the male has a semicircular contour, that of the female is medianly notched and ends in two blunt points. The dark segmental spots of the abdominal border are drop-shaped in the males, and rounded in the females. Details of the condition of the body covering and the chaetotaxy cannot be given because of the bad condition of the material (originally preserved in formaldehyde?). The soft and weakly sclerotized male genitalia (Text-fig. 1) represent a type which is similar to those found in a number of other species of *Quadraceps*.

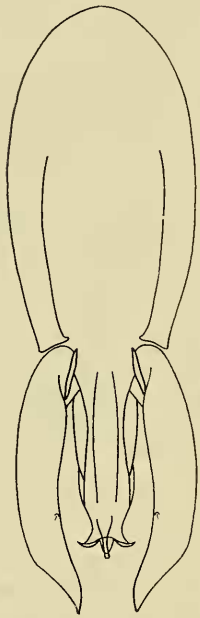

Fig. 1. *Quadraceps vaginalis*, n. sp. from *Chionis minor nasicornis*, male genitalia.

The paramers are weakly curved and taper more strongly terminally. The endomeral complex (mesosome) is of longish shape, about three-fourths as long as the paramers, and ends distally in a tube-shaped, laterally extended structure, not unlike a two-pointed corolla, out of which the short penis and its accompanying support (? hypomeron of Waterston, 1915) projects like a kind of pistil.

Measurements.

Sex, Number of Specimens Measured.	Breadth of Head. (mm.)	Length of Head. (mm.)	Total Length. (mm.)	Length of Male Genitalia. (mm.)	Length of Paramers. (mm.)
♂♂ (6)	0·32–0·36	0·40–0·43	1·21–1·37	0·31–0·34	0·14
♀♀ (3)	0·36–0·38	0·45–0·47	1·53–1·60		

Holotype male and allotype female from *Chionis minor nasicornis* Reichenow, Heard Island, 8.VI.1950, H./50/In/1, deposited in the Commonwealth Scientific and Industrial Research Organization, Division of Entomology Museum, Canberra, Australia. Paratypes: 10 ♂, 2 ♀ with the same data, and 1 ♂ in the Waterston Collection of the British Museum (Natural History) from Marion Island.

References.

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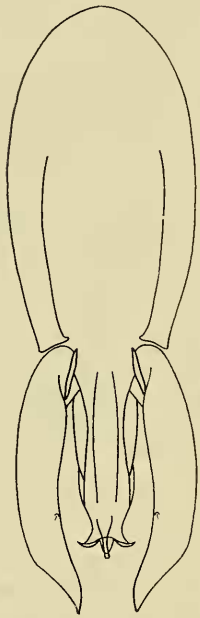

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———, 1957.—Studien zu einer vergleichenden Parasitologie der Charadriiformes oder Regenpfeifervögel. Teil 1: Mallophaga. *Parasit. SchrReihe*, 8. (*Jena*: *Gustav Fischer.*)

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EXPLANATION OF PLATE IX.

Quadraceps vaginalis, n. sp. from *Chionis minor nasicornis*, male.

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